DOCUMENT RESUME

ED 260 483 CS 505 043

AUTHOR Hecht, Michael L.; And Others
TITLE Nonverbal Behavior of Young Abused and Neglected Children.
PUB DATE May 85
NOTE 22p.; Paper presented at the Annual Meeting of the International Communication Association (35th, Honolulu, HI, May 23-27, 1985).
PUB TYPE Reports - Research/Technical (143) -- Speeches/Conference Papers (150)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS Attitude Change; Behavior Development; *Child Abuse; Child Caregivers; Child Development; Childhood Attitudes; *Child Neglect; *Communication Research; Comparative Analysis; Day Care Centers; Females; Interpersonal Communication; Males; *Nonverbal Communication; Preschool Education; Self Esteem; *Sex Differences; *Sex Stereotypes

ABSTRACT

A study was conducted to examine the effects of child abuse and neglect on children's nonverbal behaviors. It was hypothesized that abused and neglected children would be less active nonverbally than would control group children. Eight abused and neglected children, aged one through three years, were videotaped interacting with their caregivers in a daycare center, and their behavior was compared with that of a matched control group from the same center. Children were desensitized to the presence of the observers and were taped in a familiar room at the center, interacting with a familiar caretaker. After taping was completed, the tapes were coded into 9 categories in three areas of nonverbal behavior: proxemic (distance maintained from caretaker), kinesic (reaching, touching), and gaze (eye contact) behaviors. The scores were analyzed to determine the differences between abused and nonabused children. The results indicated that the abused boys tended be either slightly more exploratory or slightly more active than their nonabused counterparts. The abused girls tended to avoid physical contact with the environment and social engagement with the adult more than their nonabused counterparts or the boys in either group. The results suggest that the abused children conformed more closely to sex stereotypes than did nonabused children. (HTH)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED260483

NONVERBAL BEHAVIOR OF YOUNG ABUSED AND NEGLECTED CHILDREN

Michael L. Hecht
Department of Communication
Arizona State University

Susan H. Foster
Freshman Writing Program
University of Southern California

D. Jennifer Dunn
Department of Social Work
Arizona State University

J. Kent Williams
Department of Social Work
Arizona State University

Diane R. Anderson
Department of Social Work
Arizona State University

Doreen Pulbratek
Department of Social Work
Arizona State University

Eight abused and neglected toddlers (aged 1-3 years) and 8 matched controls were videotaped interacting with caregivers in a daycare center. Abused children avoided contact and interaction. When sex was taken into account, abused females exhibited avoidance behavior and abused males, while less affected, exhibited signs of more active behavior.

Paper presented at

the International Communication Association Convention

Honolulu, May, 1985

U.S. DEPARTMENT OF EDUCATION
NATIONAL INSTITUTE OF EDUCATION
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

X This document has been reproduced as received from the person or organization originating it.

☐ Minor changes have been made to improve reproduction quality.

• Points of view or opinions stated in this document do not necessarily represent official NIE position or policy.

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

Michael Hecht

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

CS 505 043

Research on child abuse is its infancy; very little being known about a wide range of issues in this area. And despite the impetus to research offered by the establishment in 1974 of the National Center on Child Abuse and Neglect, research has focused mainly on "aspects of service delivery rather than the etiology and consequences of the phenomenon of child abuse itself" (Washington Report, 1984). Even with the now widespread concern of the general public and the social services, therefore, the body of reliable information about the precise effects of abuse and neglect remains small.

In particular, little attention has been paid to the communicative development of abused and neglected children. This is a serious omission for two reasons. Firstly, the acquisition of language and the ability to use it through speech (or sign) in interaction with other people plays a major role in development (Vygotsky, 1962), contributing to children's acquisition of "a set of beliefs about their world, themselves and others" (Wood, 1981). Secondly, assessment by clinicians of young children's cognitive and social development depends heavily on language and communication--many diagnostic measures require verbal responses, almost all involve verbal instructions to the child, and all involve nonverbal cues in administration and response. Without an in-depth understanding of the effects of abuse and neglect on communication and language, the true extent of damage to all areas of functioning (caused by such experience) cannot be assessed.

While the number of studies on the development of language by abused and neglected children is small, the consensus appears to be that delays in the development of verbal behavior are a frequent consequence of such adverse experience. Johnson and Morse (1968) found that a sample of 101 abused children were approximately 20% below normal on standard measures of language development. Applebaum (1980) studied 60 children (30 abused, 30 control) and

found significant delays in the abused group's language and general development. Other studies (e.g., Blager and Martin, 1976; Blager, 1979) show that abused children have language delays averaging nine to ten months below normal children.

However, equally important, but so far largely unstudied, are the effects of abuse and neglect on non-verbal communicative and interpersonal behavior. It is important that this area be tackled for three main reasons. First, it is well-established that prior to the development of speech, infants develop a nonverbal communicative system consisting of both specific message-carrying gestures and other movements that establish and maintain interpersonal engagement (Bates, 1976; Lock, 1980; Foster, 1979, 1982). Second, even when language has become the primary mode of communication, non-verbal behavior continues to be an important part of face-to-face communication. (Bugental, 1974; Foster 1979; Haase & Tepper, 1972; Mehrabian & Weiner, 1967). It is therefore vital that the prelinguistic non-verbal behavior of the abused and neglected child be compared with that of the child with no experience of abuse. This is necessary to determine both whether the precursors of verbal communication are intact in the abused child and what the range of available non-verbal behaviors are for these children. Moreover, it is important to determine whether the non-verbal behavior of abused children is consistently affected across the population or whether some children are more adversely affected than others, or are differentially affected.

A third reason can be found in investigations of the nonverbal behavior of abused children's family system. Certain nonverbal behaviors by children may actually be a cause of abuse (Helfer, 1975; Gelles, 1973) and abusive mothers differ from nonabusive mothers in their nonverbal interaction with their children. (Herrenkohl & Herrenkohl, 1979). As part of a general growth in understanding the cycle of abuse, therefore, it is imperative to examine nonverbal behavior and its development in the abused (and abusing) population.

The little research that exists on the nonverbal behavior of abused and neglected children focuses mainly on the affective dimension of that behavior. Engeland and Sproule (1981) and George and Main (1979), for example, have shown that these children either become more aggressive or more passive in their nonverbal behavior. In the most detailed study in this area, George and Main (1979) coded ethnographic descriptions of 10 abused and 10 matched control toddlers (aged 1;10 to 3;0) and showed that abused children approach caregivers less, avoid or both approach and avoid more, and are more aggressive. What is not presently known is how abuse and neglect affect the full range of interactive and communicative behaviors, and whether there are differences among children dependent on sex.

Consideration of sex is important since it is well known that there are differences in the nonverbal experiences of male and female infants (Asuncion-Lande, 1979; LaFrance & Mayo, 1979). If female children are normally expected to behave more passively and males more aggressively, then it may be that abuse and neglect accentuates these differences. Without more specific information we can only speculate that since male and female children are typically treated differently, abused and neglected children also are treated differently and that this differential treatment may mediate the effects of abuse and neglect. There is reason, therefore, to suspect that abuse may differentially affect children depending on sex.

The present study was undertaken to determine whether abused and neglected children differ from controls in the performance of a range of nonverbal behaviors, and secondly, whether sex interacts with abuse. Based on limited prior research it was tentatively hypothesized that abused and neglected children would be less active nonverbally than the control group children. More specific hypotheses are precluded due to lack of prior data. Abused and

neglected children aged 1-3 years were videotaped interacting with their caregivers in a daycare center, and their behavior was compared with that of a matched control group from the same center.

METHOD

Participants. Sixteen children (8 abused and neglected and 8 matched control) participated in this study.[1] Groups were evenly divided among boys and girls. The children ranged in age from 1 to 3 years[2] and were all drawn from the same daycare center.[3] All children were raised by families in the lower socioeconomic class and lived with their natural parents. Parents signed a release form granting permission for their children to participate. (One abused child was removed from the center early in the project but was replaced in the study by another child.) The matched control group was selected to equate with the abused and neglected sample on age, family status, socio-economics and sex.

Center. The children were all enrolled in a large daycare center in the Phoenix Metropolitan area. At the time of the study 136 children were enrolled in the center. Children initially were classified as abused and neglected on the judgement of the daycare operator and the classifications were confirmed by observational methods by the researchers. The children chosen for this study had obvious signs of abuse or neglect. Abused children were observed frequently at the center with bruises and burns. Neglected children were left at the center more than 14 hours per day, 5 to 6 days a week and were observed to be unwashed with infrequent changes of clothes and/or diapers. (Our agreement with the center and families precludes more detailed descriptions). The center grouped children by age and had a ten-to-one child-to-caregiver ratio. Abused and neglected children spent their time at the center integrated with other children.

Procedures. The children were videotaped while interacting with the caregivers. One caregiver refused to participate and the three children assigned to her were taped interacting with another caregiver with whom they were already familiar. The interactions took place in a quiet room with which the children were familiar since they occasionally played in it and it was used to change diapers. Each child was videotaped during 3 separate 15 minute sessions across 3 weeks. During the sessions caregivers and children played with a form-board and with blocks: toys that could be expected to elicit the range of behavior to be examined (see below).

Before beginning the data collection, four researchers spent time in the day-care center becoming familiar to the children and desensitizing them to their presence. The children quickly acclimated, and after three visits began to include the researchers in their play activities.

Taping sessions followed directly. Each child and caregiver was brought into the taping room and given some time to get used to the camera. After a few minutes the children no longer paid attention to it and taping began. After each session of taping, caregivers were questioned to check that, in their opinion, the children had not behaved differently from normal. All children appeared to be behaving characteristically.

After the taping was completed, the tapes were coded into 9 categories of nonverbal behavior to be described below. Coders were trained in three stages. First the categories were explained to them and examples supplied. Then they discussed the categories and agreed on their definitions. Each nonverbal behavior by the child was coded. Next, they practiced coding together and individually. After training, a coding team was formed, each consisting of two researchers. The team consisted of a primary coder who was blind to the status of the children (abuse/neglect or control) and the experimental hypotheses, and

a reliability coder. Working independently, each coded two separate, randomly selected 15 minute sessions. After each completed the coding, an act by act comparison of their coding was computed and 93% exact agreement was observed. This means that the coders observing a nonverbal behavior placed it in the same category better than 9 out of 10 times, a very highly reliable rating. Thereafter, the primary coder coded the remaining tapes.

Descriptions of the Measures. Three areas of nonverbal behavior were coded and analyzed: Proxemic, kinesic, and gaze behaviors. The behaviors coded were all ones which the literature and an earlier study by Foster (1979), found to be important constituents of the preverbal communicative repertoire of normal children.

The first area involved a proxemic analysis of the child in relation to the adult. Three types of events were coded: when the child moved bodily (i.e., did not simply lean) towards the adult; when the child moved bodily away from the adult; and when the adult moved the child bodily. Proxemic behaviors were coded because, given the work of Hall (1967) and others, distance between interactants is now understood as an important indication of the kind of engagement existing between the participants. For example, a small distance indicates either intimacy or aggression, depending on the behaviors with which it is coupled. A move away from another may indicate either aversion or, in the case of a child, a confidence in the relationship with the adult. And frequent movement of the child by the adult might be interpreted as an indication of the child's passivity.

The kinesic behaviors coded were: reaching, reaching-and-touching (i.e., reaching and making contact with the object reached for) and pointing. All three of these behaviors indicate the child's involvement with the physical environment, and also form part of the prelinguistic communicative system of

normal children (Foster 1979). Pointing is almost always communicative, while reaching and reaching-and-touching can be used either communicatively or not, depending on the child's intent. Simple occurance of the three behaviors in an interactive context was determined to be a sufficient measure. From a developmental point of view, it is clear that pointing is a more sophisticated, and later developing behavior than either reaching or reaching-and-touching; and that the last of these (reach-and-touch) is less sophisticated than reaching (Foster, 1979). However, all of these behaviors are regularly used by young children from the turn of the second year, particularly in interactive play contexts. Thus all children in this study are old enough that simple chronological age would lead one to expect full and frequent use of all these behaviors in the situation examined.

The third and final set of categories involves gaze behavior. They are: sustained gaze at the adult (i.e., watching the adult); checking the attention of the adult (i.e., a glance to ascertain where the adult is looking); and uninvolved gaze (i.e., gaze away around the room, indicating apparent abandonment of social engagement). The second of these categories is particularly important in any examination of communicative development, for checking behaviors are the key to successfully engaging with another person at the same time as attending to an object of shared interest (Trevarthen & Hubley, 1978). All periods of gazing at the adult for more than simply a checking glance, were counted as single instances of 'gaze at adult' irrespective of how long the child remained fixated. And similarly with uninvolved gaze--the length of each instance of such gaze was not measured.

The nine behaviors were coded as described above, and the scores analyzed to determine the differences between abused and non-abused children and between girls and boys, and between minorities and whites.

RESULTS

A series of Chi Square Analyses were used to test the relationship between abuse and nonverbal behavior, and to examine the modeling effects of sex and ethnicity.[4] The initial 2 x 9 Chi Square Analysis revealed a significant relationship between two categories of abuse (abuse; not abused controls) and the 9 nonverbal behavior categories ($X^2 = 72.09$, $p<.05$). The most strongly influenced nonverbal behaviors were uninvolved gaze, checking, reaching, reaching-and-touching, and moving towards the caregiver (see Table I). The scores in this table suggest that abused children generally avoided social engagement and engagement with the physical environment when compared with the control group. However, an analysis breaking down the data by sex shows that the picture is actually more complicated. In sum, the abused boys tended to be either slightly more exploratory or slightly more active as measured by reach-and-touch (i.e., they more frequently made physical contact with the objects and people in their environment than their non-abused counterparts). The abused girls tended to avoid physical contact with the environment and social engagement with the adult as compared with both groups of boys and with their own non-abused counterparts.

Table I About Here

Turning now to the details of these results: the effects of sex were tested by an elaboration model involving a cell breakdown of each nonverbal category. For each of the 9 categories, a 2 x 2 Chi Square was computed for sex by abuse, thereby testing the relationship between sex and abuse for each nonverbal behavior.

Significant 2 x 2 Chi Square values ($p < .05$) for the sex by abuse analyses were observed for the categories of moving toward the caregiver ($r = 4.32$), reaching-and-touching ($X^2 = 66.24$), checking ($X^2 = 14.55$) and uninvolved gaze ($X^2 = 13.14$); and values approaching significant ($p < .10$) were observed for reaching ($X^2 = 3.54$) and gazing at the caregiver ($X^2 = 3.53$) (See Tables II to VII.) When compared to control girls, abused girls exhibited less of the following: movement toward the adult, reaching, reaching-and-touching, gazing at the caregiver, and checking. In addition, abused girls exhibited more uninvolved gaze than control girls. In other words, abused girls exhibited signs of extreme passivity and avoidance. Boys, on the other hand, were apparently less affected by abuse, any substantial effects only being seen in two categories: reaching-and-touching, and checking. While abused boys check less than controls, they reach-and-touch more. This may provide some evidence for George and Main's (1979) conclusion that abuse leads to aggressive tendencies. However, if this is what the higher counts for these behaviors mean, then it is clear that in the present study, such aggressiveness is limited to boys.

Tables II-VII About Here

The passivity of abused girls is particularly striking when one considers that, in general, control girls exhibit as much or more activity as control boys, while abused girls exhibit less than abused boys. The pattern is most clearly illustrated for reaching-and-touching in Table III and uninvolved gazing in Table X. Control girls reach-and-touch more than control boys. But abused girls do approximately half as much as abused boys. Similarly, control girls exhibit half as much uninvolved gaze as control boys, but abused girls exhibit two and a half as much. This indicates an interaction between sex and abuse.

Finally it should be noted that in no case were significant differences observed in the category coded when the caregiver moved the child. Therefore caretakers did not discriminate between children according to sex or abuse versus non-abuse. This gives us confidence that the differences we did observe in the other categories were indeed attributable to differences in the children's behavior, and were not an artifact caused by the caretakers treating the children they knew to have been abused differently from the others or discriminating based on sex.

DISCUSSION

These results raise major issues worthy of attention. The first is that of the passivity of the abused girls as compared with the boys. This is intriguing, and may result from the fact that boys are, as a cultural stereotype expected to be more physically involved with the environment than girls. Girls tend to be talked to more than boys and are expected to be more passive, while boys engage more in aggressive, and competitive play (Oakley, 1972; Lever, 1976; Eitzen, 1982). This is generally accepted as a question of social convention stemming from a cultural preconception that boys need to be encouraged to be "tough" and to exert control over their environment while girls are more delicate creatures who should be protected from that environment. What is interesting is that such stereotypes appeared not to be achieved by the non-abused population. The non-abused girls were not actually more passive than the non-abused boys. However, the effect of the abuse seems to be to produce a child that exacerbates the gender expectations at this age.

Why the abused children appear to be closer to their gender stereotype than non-abused children is a difficult question to answer, but the clue may lie in the fact that our experience working with some abusive mothers in a different

part of our project suggests that these mothers frequently have extremely unrealistic expectations of their children. They often have little idea of the actual competencies of their children and expect them to act in a more "adult" manner than they are capable. If it is the case that the abusive parents also have an overdeveloped sense of the "perfect" child in other domains, they may be encouraging their children by abuse or neglect to be more like the gender stereotype than their non-abusing counterparts. The gender stereotype may not be enforced in the non-abused group until a later age.

The generalization, therefore, is that abusive parents have an abnormal expectation that their children should conform to sexual and cultural stereotypes with respect to passivity versus active involvement. When these children cannot perform as expected, they are abuse, and the abused then moves these children more in the direction of these gender and cultural types than their non-abused counterparts.

In terms of the nonverbal underpinnings to language, the story is a more pleasant one. It is clear that all the children studied are capable of producing the behaviors with which to communicate at the prelinguistic stage. The next step in the analysis is to examine exactly how the abused children are using the behaviors in comparison with the non-abused children. This is currently being carried out in conjuction with an analysis of how the abused population is using vocalization and language to communicate in these early years (and , in preparation).

Endnotes

[1]The sample size was inhibited by three factors. First, the pragmatics of studying abused and neglected children are such that a large subject pool is not available. The significance of the social problem is such, however, that preliminary studies such as this are needed as a point of departure. Second, the design of the present study called for videotaping and analysis of three, fifteen minute sessions with teach child. The study, therefore, actually consisted of 48 interactions, 3 each with 16 children. Third, intensive analyses were applied to each tape. Such analyses are not feasible with large samples. Further, these analyses produce high frequencies of acts, which are the unit of analysis for statistical inference.

The sample size in the present study is consistent with similar studies of abused and neglected children (e.g., George & Main, 1979) as well as other intensive methodologies such as conversational analysis and small group interaction analysis. As with most research generalizabilitiy awaits further validation. However, the abused and neglected children in our sample were not atypical on any known factors (demographics, parenting conditions, socio-economics, etc.). The sample size, while not ideal, seems justifiable in terms of the intensive analyses, the representativeness of the children, the use of 48 interactions, and the pragmatics of studying a societal problem such as abuse and neglect in a naturalistic setting.

[2]This age range was selected for three reasons. First, since there is a great deal of individual variance in communicative development in the early years, a range is necessary to insure that the nonverbal behaviors will be exhibited (Foster, 1979). Second, the age roughly corresponds to that used in the most salient previous study (George & Main, 1979). Third, the range was necessary pragmatically to include as many children as possible.

[3]The day care center, part of large nationwide chain, was fairly typical of those in the area in terms of staffing, staff/child ratio, facilities, etc. Further description would violate the terms of our agreement with the center.

[4]For purposes of the Chi Square analyses, the act not the child was the unit of analysis. The act frequencies (3595 overall) are more than adequate to insure the validity of the test statistic. Examination of the frequencies (especially Table II - VI) provides very clear support for the conclusions derived from the statistical analyses.

References

Applebaum, A. Developmental Retardation in Infants As A Concimtant of Physical Child abuse. in g. j. williams & j. money (eds.), traumatic abuse and Neglect of Children at Home. Baltimore: The John Hopkins University Press, 1980.

Asuncion-Laude, N.C. Problems and strategies for sexual identity and cultural integration. International Journal for Intercultural Relations, 1979, 3, 497-505.

Birdwhistle, R. L. Kinesics and Context. Philadelphia: University of Pennsylvania Press, 1970.

Blager, F. B. The Effect of Intervention on the Speech and Language of Abused Children. Child Abuse and Neglect, 1979, 5, 991-996.

Bugental, D. E. Interpretations of naturally occurring discrepancies between words and intonation: Modes of inconsistency resolution, Journal of Personality and Social Psychology, 1974, 30, 125-133.

Chase-Lansdale, L. The child abuse prevention and treatment act of 1983. Washington, D.C.: National Center on Child Abuse and Neglect, 1979.

Egeland, B. & Sroule, L. "Attachment and Early Maltreatment." Child Development, 1981, 52, 44-52.

Eitzen, D. S. In Conflict and Order: Understanding Society. Boston: Allyn R. Bacon, 1982.

Foster, S. From Nonverbal to Verbal Communication: A study of the Development of Topic Initiation Strategies During the first 2 1/2 years. Unpublished doctoral dissertation, Department of Linguistics and Psychology, University of Lancaster, England, 1979.

Gelles, R. Child Abuse and psychopathology: A Sociological Critique and Reformulation. American Journal of OrthoPsychology, 1973, 43, 611-621

George, C. & Main M. Social Interactions of Young Abused Children: Approach Avoidance and Aggression. Child Development, 1979, 50, 306-318.

Haase, K.F. & Tepper, D. T. Nonverbal components of empathtic communication. Journal of Counseling Psychology, 1972, 19, 417-424.

Hall, E. T. The Hidden Dimension. Garden City, NJ Anchor Books, 1969.

Helfer, M. & Helfer, R. Communicating in the Therapeutic Relationship: Concepts, Strategies, Skills. In C. Kempe, and R. Helfer, (Eds.), The Battered Child, Chicago: University of Chicago Press, 1974.

Herrenkohl, R., & Herrenkohl, E. Deficiency of Maternal Approval in the Abusive Family Environment. Washington D.C.: National Center on Child Abuse and Neglect, 1979.

Johnson, B. & Morse, H. Injured Children and their Parents. Children 1968, 15, 147-152.

La France, M. & Mayo, C. Racial differences in gaze behavior during conversations two systematic observational studies. Journal of Personality and Social Psychology, 1976, 33, 547-552.

Lever, J. Sex differences in the games children play. Social Problems, 1976, 23, 478-487.

Mehrabian, A. & Weiner, M. Decoding of inconsistent communications. Journal of Personality and Social Psychology, 1967, 6, 108-114.

Oakley, A. Sex, Gender and Society. New York: Harper and Row, 1972.

Sangrund, A., Gaines, R., & Green, A. Child Abuse and Mental Retardation: The problem of Cause and Effect. The American Journal of Mental Deficiency, 1974, 79, 329-330.

Sommer, R. Personal Space: The Behavioral Basis of Design. Englewood Cliffs, NJ: Prentice Hall, 1969.

Wood, B. Children and Communication. Englewood Cliffs: Prentice hall, 1981.

TABLE I
Chi Square Analysis
Abuse By Nonverbal Behavior Categories

	Abused/Neglected	Control	TOTALS
Moving Toward Caregiver	42[a] (49 7)[b]	65 (57.3)	107
Moving Away From Caregiver	75 (68.2)	72 (78.8)	147
Caregiver Moves Child	51 (49.2)	55 (56.8)	106
Pointing	82 (86.4)	104 (99.6)	186
Reaching	892 (849.1)	937 (979.6)	1829
Reaching & Touching	104 (139.7)	197 (161.3)	301
Gazing at Caregiver	301 (293.4)	331 (338.6)	632
Checking	54 (88.2)	136 (101.8)	190
Uninvolved gaze	68 (45)	29 (52)	97
TOTALS	1669	1926	3595

a = observed frequency
b = expected frequency

Chi Square = 79.09

Degrees of Freedom = 8

TABLE II
Chi Square Analysis of Moving Toward Adult Category
Sex By Abuse

	Abused/Neglected	Control	TOTALS
MALES	28 (22.8)	30 (35.2)	58
FEMALES	14 (19.2)	35 (29.8)	49
TOTALS:	42	65	107

Chi Square = 4.32

Degrees of Freedom = 1

TABLE III
Chi Square Analysis of Reaching and Touching Category
Sex By Abuse

	Abused/Neglected	Control	TOTALS
MALES	581 (494.5)	433 (519.5)	1014
FEMALES	311 (397.5)	504 (417.5)	815
TOTALS:	892	937	1829

Chi Square = 66.24

Degrees of Freedom = 1

TABLE IV
Chi Square Analysis of Checking Category
Sex By Abuse

	Abused/Neglected	Control	TOTALS
MALES	38 (26.1)	54 (65.9)	92
FEMALES	16 (27.9)	82 (70.1)	98
TOTALS:	54	136	190

Chi Square = 14.55

Degree of Freedom = 1

TABLE V
Chi Square Analysis of Uninvolved Gaze Category
Sex By Abuse

	Abused/Neglected	Control	TOTALS
MALES	18 (25.9)	19 (11.1)	37
FEMALES	50 (42.1)	10 (17.9)	60
TOTALS:	68	29	97

Chi Square = 13.14

Degrees of Freedom = 1

TABLE VI

Chi Square Analysis of Reaching Category
Sex By Abuse

	Abused/Neglected	Control	TOTALS
MALES	50 (43.6)	49 (55.4)	99
FEMALES	32 (38.4)	55 (48.6)	87
TOTALS:	82	104	186

Chi Square = 3.54

Degrees of Freedom = 1

TABLE VII

Chi Square Analysis of Gazing at Caregiver Category
Sex By Abuse

	Abused/Neglected	Control	TOTALS
MALES	133 (144)	171 (159.2)	304
FEMALES	163 (156.2)	160 (171.8)	328
TOTALS:	301	331	632

Chi Square = 3.53

Degrees of Freedom = 1

TABLE VIII
Chi Square Analysis of Reaching Category
Ethnicity by Abuse

	Abused/Neglected	Control	TOTALS
MINORITIES	26 (39.8)	68 (55.2)	94
WHITES	49 (35.2)	35 (48.8)	84
TOTALS:	75	103	178

Chi Square = 17.56

Degrees of Freedom = 1

TABLE IX
Chi Square Analysis of Reaching and Touching Category
Ethnicity By Abuse

	Abused/Neglected	Control	TOTALS
MINORITIES	415 (438.9)	485 (461.1)	900
WHITES	477 (453.1)	452 (475.9)	929
TOTALS:	829	937	1329

Chi Square = 5.01

Degrees of Freedom = 1